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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOSEPH M. CANNON and JAMES A. JOHANSON

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Appeal 2009-0851  
Application 09/761,774  
Technology Center 2600

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Decided:<sup>1</sup> March 5, 2009

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Before MAHSHID D. SAADAT, JOHN A. JEFFERY, and KARL D.  
EASTHOM, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

## DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-14 and 16-23. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

“Piconets” are small wireless networks that can provide peer-to-peer communications over short distances. Appellants invented a piconet device and method for optimizing the link quality of the piconet device. The device provides auditory or visual indications of an acceptable quality level in a piconet connection. Quality level metrics include received signal strength indication (RSSI), data transfer, bit rate, and error rate. The device and system provide the user with the ability to adjust the quality level threshold based on the particular application.<sup>2</sup> Independent claim 1 is reproduced below:

1. A wireless piconet device, comprising:

a piconet front end;

a piconet connection acceptable quality determiner; and

a variable user link acceptable quality indicator to indicate an amount of quality achieved beyond that of an acceptable level necessary to establish a presence in a piconet network, said acceptable level being configurable by a user of said wireless piconet device;

wherein said piconet connection acceptable quality determiner determines a condition of an acceptable level at least

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<sup>2</sup> See generally Spec. 1:12-2:23, 4:10-22, 6:4-7:16, and 9:15-21.

one aspect relating to a quality of connection achieved through said piconet front end determined by comparing a determined link quality through said piconet front end and a minimum link quality threshold, and activates said variable user link acceptable quality indicator based on a quality of said condition above said acceptable level.

The Examiner relies upon the following as evidence in support of the rejection:

Blasiak	US 5,711,004	Jan. 20, 1998
Gendel	US 6,127,936	Oct. 3, 2000
Lebensfeld	US 6,311,982 B1	Nov. 6, 2001 (filed Feb. 7, 2000)
Croft	US 6,490,439 B1	Dec. 3, 2002 (filed Oct. 4, 2000)

1. Claims 1-14 and 16-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Croft, Gendel, and Blasiak (Ans. 3-7).

2. Claims 1-14 and 16-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Croft, Gendel, and Lebensfeld (Ans. 3-7).

Rather than repeat the arguments of Appellants or the Examiner, we refer to the Briefs and the Answer<sup>3</sup> for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments, which Appellants could have made but did not make in the Briefs, have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

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<sup>3</sup> Throughout this opinion, we refer to (1) the most recent Appeal Brief filed October 5, 2007; (2) the Examiner's Answer mailed January 29, 2008; and (3) the Reply Brief filed March 27, 2008.

REJECTION OVER CROFT, GENDEL, AND BLASIAK

Regarding representative independent claim 1,<sup>4</sup> the Examiner finds that the combination of Croft, Gendel, and Blasiak teaches all the recited elements (Ans. 3-5). Appellant argues: (1) the combination of Croft and Gendel does not teach: (a) “a variable user link acceptable quality indicator to indicate an amount of quality beyond that of an acceptable level necessary to establish a presence in a piconet network, said acceptable level being configurable by a user” and (b) “wherein the piconet connection acceptable quality determiner . . . activates said variable user link acceptable quality indicator based on a quality of said condition above said acceptable level” as recited in claim 1 and (2) Blasiak is unrelated to piconets and thus modifying Croft based on Blasiak’s teaching would not make sense (App. Br. 5-8; Reply Br. 2-4).

ISSUES

The following issues have been raised in the present appeal:

(1) Have the Appellants shown the Examiner erred by finding Croft, Gendel, and Blasiak collectively teach an acceptable quality indicator “to indicate an amount of quality achieved beyond that of an acceptable level necessary to establish a presence in a piconet network, said acceptable level being configurable by a user” and “the piconet connection acceptable quality determiner . . . activates said variable user link acceptable quality

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<sup>4</sup> Appellant argues claims 1-14 and 16-23 as a group (App. Br. 5-9; Reply Br. 2-5). Accordingly, we select independent claim 1 as representative. 37 C.F.R. § 41.37(c)(1)(vii).

indicator based on a quality of said condition above said acceptable level” in rejecting claim 1 under § 103?

(2) Under § 103, have the Appellants shown the Examiner erred by finding Blasiak to be analogous art such that its combination with Croft and Gendel teaches the variable user link acceptable quality indicator is configurable by a user of the piconet device as recited in claim 1?

### FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

#### *Croft*

1. Croft discloses a Bluetooth system or wireless piconet 801 with piconet devices 810, 820, 830, and 840 (Croft, col. 8, ll. 5-39; Fig. 8).
2. Croft provides an example of a Bluetooth device’s transceiver 908. The transceiver includes an antenna 905, a RF module 910, and a link controller 920 that performs quality of service functions. (Croft, col. 8, l. 40 – col. 9, l. 2; Fig. 9).
3. Croft demonstrates various wireless transceiver embodiments that include a light emitting diode (LED) or light source (e.g., 1030) for indicating the incoming signal strength or whether a Bluetooth piconet has been detected. Signal strength can be indicated by light intensity or the number of lights illuminated. (Croft, col. 9, l. 30 – col. 10, l. 12 and col. 11, ll. 25-34; Figs. 10A-11).

*Gendel*

4. Gendel discloses a wireless RF device having a front end 34 and a microcontroller 40 that measures the quality of the received incoming signal (Gendel, col. 1, ll. 22-34 and 53-63 and col. 6, ll. 16-40; Fig. 3).
5. Gendel explains that the number of annunciations (e.g., light flashes or beeps) produced by the wireless device is a function of the measured signal strength. One flash indicates weak reception, while seven flashes indicate exceptionally strong reception. (Gendel, col. 5, ll. 1-3, 12-30 and 47-49; Fig. 1).
6. Gendel teaches that if the signal strength is below a minimum (e.g., MIN in Fig. 1) or below the receiver's sensitivity threshold, no annunciations are produced. (Gendel, col. 1, ll. 60-63, col. 4, ll. 66-67, col. 5, ll. 9-11, 22, 23, and 52-54; Fig. 1).
7. Gendel produces: (1) one annunciation when the signal strength is at or above a minimum, MIN, and less than the designated signal strength for two annunciations; (2) two annunciations when the signal strength is above the maximum designated signal strength for one annunciation and less than the designated signal strength for three annunciations; (3) three annunciations when the signal strength is above the maximum designated signal strength for two annunciations and less than the designated signal strength for four annunciations; and so on up to seven annunciations. (Gendel, col. 4, l. 54 – col. 5, l. 20; Fig. 1).
8. Gendel teaches that the visual or auditory indicator permits the user to determine the optimal place for the wireless device. (Gendel, col. 5, ll. 49-51).

*Blasiak*

9. Blasiak teaches a wireless device (e.g., 106 or 107) that includes a signal quality threshold value that is adjustable by the user. (Blasiak, col. 2, ll. 30 and 31 and col. 5, ll. 24-25; Fig. 1).
10. Blasiak teaches the threshold can be adjusted based on the information (e.g., pure data or voice) transmitted and the user's tolerances. (Blasiak, col. 5, ll. 16-30).

*Specification*

11. The Specification discloses producing a light or sound when the wireless piconet device "is above (or below) an acceptable connection quality threshold." (Spec. 6:27-28).
12. The Specification discloses the RSSI threshold can be configured by the user based on the particular application. (Spec. 9:17-21).

*Lebensfeld*

13. Lebensfeld discloses a wireless detecting system 10 that includes (1) game elements 14 that comprise a wireless transmitter 16, and (2) a detector element 12. (Lebensfeld, col. 4, ll. 33-45; Fig. 1).
14. Lebensfeld teaches the detector element 12 can have a receiver circuit 94 with a variable resistor. This allows the user to adjust or set a desired signal strength threshold depending on the environment to indicate when the receiver and wireless transmitting element 14 are within range. (Lebensfeld, col. 7, l. 40 – col. 8, l. 2 and col. 10, ll. 46-65; Fig. 5).



## PRINCIPLES OF LAW

During examination of a patent application, a claim is given its broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. Of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). “[T]he words of a claim ‘are generally given their ordinary and customary meaning.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted).

Discussing the question of obviousness of a patent that claims a combination of known elements, *KSR Int’l v. Teleflex, Inc.*, 550 U.S. 398, 127 S. Ct. 1727 (2007), explains:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraidia* [v. *AG Pro, Inc.*, 425 U.S. 273 (1976)] and *Anderson's-Black Rock[, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

*KSR*, 127 S. Ct. at 1740.

As stated in *In re Kahn*, 441 F.3d 977 (Fed. Cir. 2006), “[t]he analogous-art test requires that the Board show that a reference is either in the field of the applicant's endeavor or is reasonably pertinent to the problem with which the inventor was concerned in order to rely

on that reference as a basis for rejection.” *Id.* at 986-87 (citing *Oetiker*, 977 F.2d at 1447).

## ANALYSIS

Because Appellants argue that neither Croft nor Gendel disclose the limitation “an acceptable level necessary to establish a presence in a piconet network,” we begin by construing this limitation in light of the Specification. *Am. Acad.*, 367 F.3d at 1364. The Specification discusses outputting a light or sound when the wireless device “is above (or below) an acceptable connection quality threshold” (FF 11), but does not further explain what the acceptable connection quality level is. Thus, we construe the phrase “an acceptable level necessary to establish a presence in a piconet network” in light of its ordinary and customary meaning.

To be sure, an “acceptable level” to establish a presence can be subjective to a specific user. At a minimum, however, an acceptable level would be having a strong enough signal at a close enough range to create a piconet connection. Thus, contrary to Appellants’ contentions (Reply Br. 2-3), nothing in claim 1 precludes the minimum link quality threshold for valid reception from also being the acceptable quality level. Giving this phrase its broadest reasonable interpretation, we find that “an acceptable level necessary to establish a presence in a piconet network” means the wireless device’s quality level is high enough or “acceptable” to establish a connection with a piconet network. With this construction, we turn to the cited art.

Croft discloses a transceiver 908 (i.e., a wireless piconet device) with an RF module 910 that fully meets the recited “front end.” See FF 1-2. The

Croft device can also include a “quality indicator” (LED or light source 1030) that displays incoming signal strength or the existence of piconet connection (i.e., whether a Bluetooth piconet has been detected) in terms of light intensity or the number of lights illuminated (FF 3). As the Examiner acknowledges (Ans. 3-4), Croft does not expressly disclose a “quality indicator to indicate the amount of quality achieved beyond that of an acceptable level necessary to establish a presence in a piconet network,” as recited in claim 1.

Gendel demonstrates a known “quality indicator” (microcontroller 40) used with wireless RF devices that shows the incoming signal strength above a designated threshold or level (FF 4-5). Gendel teaches producing a series of light flashes or beeps to indicate when the signal strength surpasses a minimum threshold (MIN) and other thresholds above the minimum threshold (FF 6-7) so that the user can determine the optimal location for the device (FF 8). To illustrate, Gendel teaches that no flashes or beeps are produced when the signal strength is below a minimum threshold amount or MIN (FF 6). By having no flashes or beeps, Gendel indicates the strength or quality of the signal has not achieved a minimum acceptable level (MIN) necessary to make a connection or establish a presence in a piconet. Once the minimum threshold is surpassed or is beyond an acceptable minimum level to establish a presence in a piconet, Gendel flashes a single light (FF 5-7).

To explain even further, Figure 1 of Gendel is reproduced below:

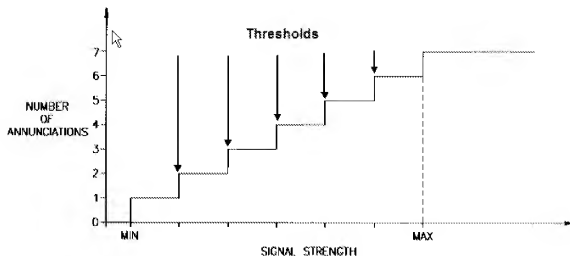


Figure 1 - Showing Different Annunciations versus Signal Strength

This figure shows steps or signal strength ranges corresponding to a number of annunciations (e.g., flashes), such as one flash for any signal having a strength in the range equal to MIN and less than the leftmost threshold arrow. For any signal strength to the right of the leftmost threshold arrow and to the left of the next leftmost threshold arrow, the number of flashes will be two and so on. Gendel, in essence, demonstrates a number of acceptable levels for the user to choose from (shown by MIN, the five threshold arrows, and MAX), and each is indicated by a different number of light flashes. Thus, a person with ordinary skill in the art would have recognized Gendel's teaching would predictably improve Croft's device by not only using the lights to indicate the signal strength intensity, but also when certain thresholds have been surpassed so a user can locate the optimal place for the device (FF 8). See *KSR*, 127 S. Ct. at 1740. Gendel, therefore, teaches the

inclusion of a variable link acceptable quality indicator to indicate an amount of quality achieved beyond that of an acceptable level (e.g., one of MIN, five threshold arrows, and MAX) necessary to establish a presence in a piconet network as recited in claim 1.

Arguably, the user of Gendel's device can choose a preferred number of light flashes as an acceptable level to establish a presence in a piconet and the acceptable level is, therefore, configurable by the user. Nonetheless, Blasiak also teaches a wireless device having an adjustable signal quality threshold value set by the user (FF 9). Armed with Blasiak's teaching, one skilled in the art would have recognized a predictable improvement over the Croft/Gendel device includes an acceptable quality indicator that a user can configure depending on the transmitted data (e.g., voice versus pure data) and the user's tolerances (FF 10). As such, the combination of Croft, Gendel, and Blasiak teaches the limitation of "a variable user link acceptable quality indicator to indicate the amount of quality achieved beyond that of an acceptance level necessary to establish a presence in a piconet, said acceptable level being configurable by a user of said wireless piconet device, wherein said piconet connection acceptable quality determiner determines a condition of an acceptable level . . . by comparing a determined link quality through said piconet front end and a minimum link quality threshold, and activates said variable user link acceptable quality indicator based on a quality of said condition above said acceptable level," as recited in claim 1.

Appellants contend that Blasiak relates to hand-off technology and not piconets and, therefore, is not combinable with Croft and Gendel (App. Br. 7; Reply Br. 3-4). We disagree. First, the Examiner cites Blasiak for its specific teaching of a known technique used with wireless devices to permit

the user to select the device's signal strength threshold level depending on the kind of data transmitted and user's tolerances (FF 9). Second, Croft, Gendel, and Blasiak all are in the same field of endeavor of detecting and indicating signal strength in wireless technologies. Moreover, Blasiak's teaching reasonably relates to the problem with which the inventor was concerned, which includes permitting the user to configure the signal strength threshold based on the particular application (FF 12). Therefore, we find Blasiak is analogous art. *See Kahn*, 441 F.3d at 986-87.

For the above reasons, Appellants have not shown the Examiner erred in rejecting claims 1-14 and 16-23 under 35 U.S.C. § 103(a) as being unpatentable over Croft, Gendel, and Blasiak.

#### REJECTION OVER CROFT, GENDEL, AND LEBENSFELD

The Examiner has presented an alternative obviousness rejection based on Croft, Gendel, and Lebensfeld (Ans. 3-7). Regarding representative independent claim 1,<sup>5</sup> Appellants have made the same arguments with respect to Croft and Gendel for this alternative rejection (App. Br. 5 and 6). As such, the previous discussion of Croft and Gendel applies equally to this argument, and we incorporate that discussion by reference.

Regarding Lebensfeld, Appellants contend that the disclosed adjustable threshold circuit relates to a game and not a piconet and, therefore is therefore not combinable with Croft and Gendel (App. Br. 8; Reply Br. 4).

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<sup>5</sup> Appellant argues claims 1-14 and 16-23 as a group (App. Br. 5-9; Reply Br. 2-5). Accordingly, we select independent claim 1 as representative. 37 C.F.R. § 41.37(c)(1)(vii).

The issue before us is whether the Appellants have shown the Examiner erred by finding Lebensfeld to be analogous art such that its combination with Croft and Gendel teaches the variable user link acceptable quality indicator is configurable by a user of the piconet device in rejecting claim 1 under § 103(a).

As we indicated previously, Croft, Gendel, and Blasiak all are in the same field of endeavor of detecting and indicating signal strength in wireless technologies. Additionally, the Examiner cites Lebensfeld for its specific teaching of a known technique used with wireless devices to permit the user to adjust a preferred signal strength threshold level (FF 13-14) and not for its teaching regarding a game. Despite Lebensfeld's amusement application, it nonetheless utilizes wireless communications among its various components. *See* FF 13 and 14. As such, Lebensfeld also reasonably relates to Appellants' problem of providing the user with control over an acceptable signal strength or quality link level for a wireless device depending on the environment or its application. *See* FF 12 and 14. Therefore, we find Lebensfeld is analogous art.

For the above reasons, Appellants have not shown the Examiner erred in rejecting claims 1-14 and 16-23 under 35 U.S.C. § 103(a) as being unpatentable over Croft, Gendel, and Lebensfeld.

### CONCLUSIONS

For the foregoing reasons:

(1) Appellants have not shown the Examiner erred by finding Croft, Gendel, and Blasiak collectively teach an acceptable quality indicator "to indicate an amount of quality achieved beyond that of an acceptable level

necessary to establish a presence in a piconet network, said acceptable level being configurable by a user” and “the piconet connection acceptable quality determiner . . . activates said variable user link acceptable quality indicator based on a quality of said condition above said acceptable level” in rejecting claim 1 under § 103.

(2) Appellants have not shown the Examiner erred by finding Blasiak and Lebensfeld to be analogous art such that their combination with Croft and Gendel teaches the variable user link acceptable quality indicator is configurable by a user of the piconet device in rejecting claim 1 under § 103.

Accordingly, we will sustain the Examiner’s rejection of claim 1-14 and 16-23.

#### DECISION

The decision of the Examiner to reject claims 1-14 and 16-23 is affirmed.



Appeal 2009-0851  
Application 09/761,774

No period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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